

**REMARKS**

Claims 1-14 and 19-20 are presented for examination. In view of the remarks that follow, Applicants respectfully request reconsideration.

**Allowable Subject Matter**

Noted with appreciation is the indication in the Office Action that dependent Claim 14 recites allowable subject matter, and would be allowed if rewritten in independent form. Claim 14 depends indirectly from independent Claim 1, and Claim 1 is believed to be allowable for reasons discussed below. Accordingly, it is believed to be unnecessary to separately place Claim 14 in independent form at this time.

**Interview Summary**

The most recent prior Office Action (mailed on November 20, 2006) was signed by Primary Examiner Mary Wilczewski. Following receipt of that Office Action, the undersigned placed a telephone call to Examiner Wilczewski on December 5, 2006, to request a telephone conference regarding that Office Action. However, the undersigned's call was not returned. On January 10, 2007, the undersigned telephoned Supervisory Primary Examiner (SPE) Zandra Smith, and outlined some problems in the November 20 Office Action. These included the fact that the present application discloses at least five species/embodiments, including (1) Figures 2 and 7A-7D, (2) Figure 3, (3) Figure 4, (4) Figure 5, and (5) Figure 6. However, the election-of-species requirement improperly identifies only two of these five embodiments. Also, the November 20 Office Action asserted that Claim 19 reads on Figure 2, but it doesn't. Figure 2 shows one dummy structure, whereas Claim 19 recites at least two dummy structures. The Office Action also asserted that Claim 19 does not read onto the embodiment of Figure 3, but the basis for this assertion is not clear, because there is no direct inconsistency. SPE Smith indicated that she would review the November 20 Office Action, and then call back.

The undersigned made a follow up telephone call to SPE Smith on January 22, 2007, but learned that SPE Smith was out for an extended absence. On February 12, 2007, the undersigned made another follow up call to SPE Smith. SPE Smith then talked to Examiner Lewis, and called back to say that she was withdrawing the finality of the November 20 Office Action, and that a further non-final Office Action would be issued to address all pending claims on the merits. In due course, the present Office Action was mailed on April 5, 2007.

Title of the Invention

The present Office Action objects to the title of the invention, asserting that the title is not descriptive of the claimed subject matter. This objection to the title is respectfully traversed, for the following reasons.

In a prior Office Action mailed on August 28, 2006, the Examiner presented an equivalent objection to the title. In reply to that prior Office Action, Applicants filed a prior Response on October 20, 2006. That prior Response (1) traversed the prior objection on the ground that no clear reason was given in support of that objection, and (2) amended the title to make it more descriptive. The remarks of that prior Response indicated that:

. . . if the Examiner is still of the opinion that the title is not sufficiently descriptive, the Examiner is respectfully requested to (1) specify in detail why the amended title is believed to be problematic, and (2) propose a title that would be considered properly descriptive.

It is noted that, in objecting to the title again in the present Office Action, the Examiner has not bothered to either (1) specify in detail why the amended title is believed to be insufficiently descriptive, or (2) propose a title that would be considered properly descriptive. Thus, the Examiner has reiterated an objection that Applicants believe they have already cured, without

providing reasonable cooperation in terms of identifying a specific problem or suggesting a title that would be considered properly descriptive. It is therefore respectfully submitted that the current objection to the title is without reasonable basis, and it is respectfully requested that the objection be withdrawn.

Absence of a Summary Section

The Office Action also objects to the specification, on the ground that the specification does not include a "summary of the invention" section. In the prior Office Action mailed on August 28, 2006, the Examiner presented the same objection to the absence of a summary. In the prior Response filed October 20, 2006, Applicants correctly pointed out that there is no requirement for a "summary of the invention" in any of the patent statute, the rules, or the MPEP. In fact, MPEP §608.01(a) explicitly explains that a "summary" section is not required. It is respectfully submitted that, in the present Office Action, the repeated objection to the specification for lack of a summary is completely without merit, and it is respectfully requested that it be withdrawn.

Independent Claim 1 - 35 U.S.C. §103

Independent Claim 1 stands rejected under 35 U.S.C. §103 on the ground that it would be obvious in view of a proposed combination of teachings from Lee U.S. Patent No. 5,905,289 and Tomita U.S. Patent Application Publication No. 2005/0035457. This ground of rejection is respectfully traversed. The PTO specifies in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Lee and Tomita fail to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for mutually exclusive reasons that are discussed below.

#### NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

Only analogous prior art can be considered for the purpose of trying to establish a *prima facie* case of obviousness under 35 U.S.C. §103. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must be either (1) in the field of Applicants' endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. The provisions of §2141.01(a) go on to explain that, although the PTO classification system carries a small amount of weight in determining what is relevant, similarities and differences in structure and function carry far greater weight. In this regard, §2141.01(a) discusses a specific example, and states that:

The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.

In the present situation, and as evident from the title of the invention, the particular problem with which the Applicants were concerned, and the field of Applicants' endeavor, is heat dissipation within an integrated circuit. The Office Action admits at lines 1-2 on page 8 that Lee "fails to disclose . . . dummy structures from different metallurgy layers are thermally connected".

The Office Action then turns to Tomita. However, as explained by Tomita in paragraph [0008], Tomita's focus is (1) inhibiting the occurrence of resist poisoning and

(2) providing protection against external electromagnetic noise. Words such as "heat" and "thermal" do not appear anywhere within Tomita, much less in association with dummy structures. Consequently, Tomita is no more relevant than Lee, and adds nothing to the teachings of Lee.

In reply, the Examiner cites a Board of Appeals decision in Section 12 on pages 13-14 of the Office Action, asserting that:

... the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bb.Pat.App & Inter. 1985).

However, the *Obiaya* decision has absolutely no relevance to the present situation. The *Obiaya* decision involved a situation where an applicant argued that his invention was not obvious in view of the prior art because his invention had an advantage, but the Board held that the same advantage was actually inherently present in the prior art. Here, Applicants are not talking about any advantage of their invention, but instead are addressing the entirely different issue of whether or not a particular reference constitutes analogous prior art for purposes of §103. The *Obiaya* decision had absolutely nothing to do with the issue of whether or not a particular reference constitutes analogous prior art.

In Section 12 of the Office Action, the Examiner also cites the Federal Circuit court decision of *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed.Cir. 1992). The Examiner asserts that *Oetiker* supports the Examiner's position that Lee and Tomita are analogous prior art with respect to the present application. However, *Oetiker* does not support the Examiner's position. In particular, the holding in *Oetiker* did not represent a determination that the reference in question was analogous prior art. To the contrary, the holding in *Oetiker* was that the

reference in question was not analogous prior art. As explained by the PTO in MPEP §2141.01(a)(IV), "The court [in *Oetiker*] held the reference was not within the field of applicant's endeavor, and was not reasonably pertinent to the particular problem with which the inventor was concerned".

In Section 12 of the Office Action, the Examiner further asserts that "semiconductors" is a field of endeavor, and that everything relating to semiconductors is within this field, including Lee, Tomita and the present disclosure. However, the courts do not agree with the Examiner. For example, MPEP §2141.01(a)(V) cites the Federal Circuit decision of *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed.Cir. 1993). In *Wang*, the court held that single in-line memory modules (SIMMs) for installation in personal computers are in a different field of endeavor from SIMMs for industrial controllers. Contrary to the assertions in the Office Action, "semiconductors" is not a field of endeavor, because *Wang* held that semiconductor SIMMs of one type are not in the same field of endeavor as semiconductor SIMMs of a different type.

As mentioned above, the particular problem with which the Applicants were concerned, and thus the field of Applicants' endeavor, is heat dissipation within an integrated circuit. Neither Lee nor Tomita has any teachings about heat dissipation. Accordingly, neither Lee nor Tomita is within Applicants' field of endeavor, and neither is reasonably pertinent to the particular problem with which the inventors were concerned. In the words of the MPEP, neither Lee nor Tomita is "reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of" heat dissipation within an integrated circuit "by considering a reference dealing with" maintaining surface planarity of a metallurgy layer (lines 34-38 in column 2 of Lee), or inhibiting resist poisoning and providing protection against external noise (paragraph [0008] of Tomita). Accordingly, it is respectfully submitted that neither Lee nor Tomita is what the PTO considers to be "analogous" prior art. Thus, neither can properly be used in an attempt to establish a *prima facie* case of obviousness under §103. As a result, the Examiner's burden of

factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under §103 should be withdrawn. For this reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

#### NO VALID REASON IS GIVEN FOR MODIFYING LEE IN VIEW OF TOMITA

On page 5 of the Office Action, the Examiner asserts that, in view of Tomita, it would be obvious to modify Lee by thermally connecting dummy structures in different metallurgy layers. Applicants respectfully disagree, for the following reasons. The PTO recently issued a memo to examiners, a courtesy copy of which is attached. The memo concluded by emphasizing that:

. . . in formulating a rejection under 35 U.S.C. §103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.

On page 5 of the Office Action, the Examiner asserts that a reason a person of ordinary skill would have been prompted to modify Lee in view of Tomita would be for "protecting against external noise". Applicants disagree. First, the modification suggested by the Examiner is to thermally connect dummy structures to obtain a thermal result, but the reason suggested by the Examiner has to do with electrically connecting dummy structures to obtain an electromagnetic shielding effect. Second, in Tomita, the dummy structures are located around the periphery of other circuitry, and the dummy structures are thus in a position where external noise reaches the dummy structures before it reaches the other circuitry. In contrast, the Examiner is relying on the embodiment shown in Figure 12 of Lee, where the dummy structures 44 are located in the interior of the semiconductor structure, between other circuitry such as the conductive lines 20 and the conductive lines 22. A person skilled in the art would readily recognize that connecting dummy structures 44 in Figure 12 of Lee would never provide the asserted benefit of "protecting

against external noise", because external noise would reach the conductive lines 20 and 22 before it reached the dummy structures 44.

Consequently, the idea to modify Lee in view of Tomita is not coming from what was known before the present invention, but instead is necessarily coming from hindsight of Applicant's disclosure. In particular, using Applicant's disclosure as a blueprint, the Examiner has selectively extracted isolated structural features from both Lee and Tomita, and has then combined these isolated features with a 20/20 hindsight view of the desired result. The proper inquiry is whether, if Applicant's disclosure is completely ignored, there is any reason that would prompt a person of ordinary skill to make the proposed modification of Lee in view of Tomita. The Examiner has not identified any valid reason that would prompt such a modification. The rejection is clearly based on hindsight.

As to hindsight, the Examiner does not deny that she is using hindsight of Applicants' disclosure. Instead, on page 14 of the Office Action, the Examiner asserts that her use of hindsight of Applicants' disclosure is perfectly acceptable, citing the court case of *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). However, the *McLaughlin* case actually says just the opposite of what the Examiner asserts it does. In particular, the *McLaughlin* case says that examiners may not use hindsight of Applicants' disclosure

As emphasized in the enclosed PTO memo, if a §103 rejection does not identify any valid reason that would prompt the proposed modification, then the rejection fails to meet one of the minimum requirements needed to properly establish a *prima facie* case of obviousness. In the present situation, for each of the various different reasons discussed above, it is respectfully submitted that there is no valid reason that would prompt a person of ordinary skill in the art to make the proposed modification to Lee in view of Tomita. Accordingly, the proposed modification of Lee in view of Tomita would not be obvious under §103.

In view of each of the various different reasons discussed above, it is respectfully submitted that Claim 1 is not rendered obvious under §103 by Lee and Tomita. Claim 1 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Independent Claim 19

Independent Claim 19 stands rejected under 35 U.S.C. §103 on the ground that it would be obvious in view of a proposed combination of teachings from Lee, Tomita, and Iguchi U.S. Patent No. 6,225,697. This ground of rejection is respectfully traversed. As noted earlier, the PTO specifies in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Lee, Tomita and Iguchi fail to establish a *prima facie* case of obviousness under §103 with respect to Claim 19. In this regard, the Office Action relies on Iguchi for a teaching of a particular 0.1 $\mu$ m dimension. Aside from this, the Office Action combines Lee and Tomita in essentially the same manner that they were combined in order to reject Claim 1. Accordingly, for the same basic reasons set forth above in association with Claim 1, it is respectfully submitted (1) that Lee and Tomita are non-analogous art with respect to the present invention, and (2) that there is no valid reason that would prompt a person of ordinary skill in the art to make the proposed modification to Lee in view of Tomita. It is therefore respectfully submitted that Claim 19 is not rendered obvious under §103 by Lee and Tomita, even when considered with Iguchi. Claim 19 is thus believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

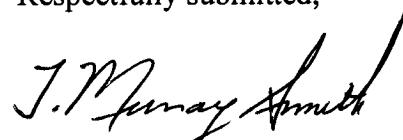
Claims 2-13 and Claim 20 respectively depend from Claim 1 and Claim 19, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1 and 19.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no additional fees are due, the Commissioner is hereby authorized to charge any fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone, LLP.

Respectfully submitted,



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Enclosures: Copy of PTO Memo dated May 3, 2007 (2 pages)

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